

### REMARKS/ARGUMENTS

Claims 5-22 remain pending in this application. With this response, Applicant has amended claim 5. Support for this amendment is found throughout the specification and drawings as filed, for example, in Examples 1-5. No new matter has been added.

In the Office Action of January 28, 2010, claims 5-22 were rejected under 35 U.S.C. 103(a) as allegedly unpatentable over Kumar (US 4,343,751) in view of Dodman (US 5,415,131) and Rong et al., (US 6,444,742). Applicant respectfully traverses this rejection.

Applicant acknowledges that one cannot show nonobviousness by attacking references individually where the rejections are based on a combination of references. However, consideration of the scope and content of the prior art, and the differences between the claimed invention and the prior art, is essential to a proper obviousness inquiry. *See KSR International Co. v. Teleflex Inc.*, 550 US 398, 406, 82 USPQ 2d 1385, 1387 (2007) (citing *Graham v. John Deere Co.*, 383 US 1, 17-18 148 USPQ 459 (1966)). Accordingly, Applicant discusses the disclosure of each of the cited references and explains why the references would not have lead the skilled person to Applicant's invention.

Applicant submits that none of the cited references teach or suggest that an exclusively fired clay substrate is superior to an unfired clay substrate for "containing a pheromone," as is taught by the present invention. As amended herein, independent claim 5 recites in part: "*A sustained release pheromone formulation comprising: an insect-derived pheromone or a synthesized pheromone . . . and a substrate for containing the pheromone consisting essentially of a calcined crystalline mineral, prepared by steps consisting essentially of firing a crystalline mineral selected from the group consisting of clay minerals of a multiple-chain structure type having a fibrous form, . . .*" (emphasis added).

In rejecting claim 5, the Examiner at page 4 of the Office Action asserts that Kumar teaches that clays may be calcined (col. 2, lines 30-35 and col. 4, lines 15-25). However, at the cited col. 2, lines 30-35, Kumar discloses "a wide variety of species of calcined or non-calcined clay fines;" and at col. 4, lines 18-20, Kumar teaches, "The present agglomeration process works

well for either noncalcined fines or for a combination of noncalcined and calcined fines." Furthermore, at col. 4, lines 29-34, Kumar teaches, ". . . one-hundred percent (100%) noncalcined fines can be used in the agglomeration process; however if calcined fines are used, generally up to about thirty-five (35) parts of the calcined fines may be used with sixty-five (65) parts of noncalcined fines." As such, Kumar teaches that exclusively noncalcined fines can be used, and also that, if a combination of calcined and noncalcined fines is used, the majority of the combination (65 parts) should be noncalcined. Accordingly, Kumar fails to recognize that a substrate consisting essentially of calcined crystalline minerals confers an advantageous result.

The unexpected result achieved by Applicant is disclosed in the present specification, for example, at page 21, Table 2 and page 22, Table 4, wherein the pheromone survival rate is reported to be significantly higher when the composition has been fired. Specifically, in Table 2, Example 2 shows that 72.1% of the pheromone survives in the fired composition at 30 days, compared to 37.9% pheromone survival for the unfired composition. Therefore, and in contrast to the Examiner's assertion on page 6, the product of Kumar is is not identical or substantially identical in structure or composition to the composition of present claim 5, as evidenced in the side-by-side comparisons of Tables 2 and 4. A Kumar composition of 65% non-calcined fines and 35% calcined fines is not a composition that consists essentially of calcined crystalline minerals. Accordingly, Kumar does not teach, suggest, or even contemplate the pheromone-containing benefit of using a fired crystalline mineral composition.

Rong et al. disclose polyolefin clay nanocomposites and do not teach firing a crystalline mineral to contain a pheromone, as recited in independent claim 5. Rong et al. disclose firing clay nanocomposites for a different purpose, namely, to obtain a nanocomposite having desired mechanical properties and thermal resistance (col. 2, lines 4-6). As such, the skilled person would not apply the firing process of Rong et al. for making the presently claimed crystalline minerals because Rong et al. do not teach that calcining of a crystalline mineral imparts advantages for containing a pheromone. The skilled person could not extrapolate that the firing of a clay nanocomposite as in Rong et al. would produce the advantageous results for containing a pheromone in a crystalline mineral as shown in Tables 2 and 4 of the present specification.

Certainly, the combination of Rong et al. and Kumar would not lead to the invention of the Applicant's claim 5, which now recites a pheromone contained in a substrate consisting essentially of a calcined crystalline mineral. Applicant respectfully reminds the Examiner that impermissible hindsight is not to be used in assessing patentability under 35 U.S.C 103. *"Knowledge of applicant's disclosure must be put aside in reaching this determination, yet kept in mind in order to determine the 'differences,' conduct the search and evaluate the 'subject matter as a whole' of the invention. The tendency to resort to 'hindsight'" based upon applicant's disclosure is often difficult to avoid due to the very nature of the examination process. However, impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of the facts gleaned from the prior art."* MPEP 2142. The skilled person would not consider Rong et al. in view of Kumar.

Dodman discloses an animal litter preparation comprising an absorbing substance and a releaser pheromone compound (see col. 2, lines 9-23 of Dodman). Dodman does not disclose *an insect-derived pheromone and a substrate for containing the pheromone consisting of firing a crystalline mineral*, as recited in part in independent claim 5. No where in Dodman are a firing step or conditions thereof disclosed or contemplated. The skilled person considering Kumar in view of Rong et al. and Dodman would not arrive at the presently claimed composition, because Kumar fails to recognize the advantages of an exclusively calcined crystalline mineral; the skilled person would not apply the calcining temperatures of Rong et al. to Kumar because the calcining of Rong et al. is for a different, unrelated purpose; and, Dodman does not teach an insect-derived pheromone or a firing step and, therefore, does not remedy the deficiencies of Kumar. Accordingly, independent claim 5, and all claims depending therefrom, including claims 6-22, are patentable over Kumar in view of Rong et al. and Dodman. In addition, the dependent claims include other limitations, which together with their base claim and any intervening claims, further patentably distinguish them over the cited art. As such, withdrawal of this rejection is respectfully requested.

Claims 5-22 are rejected under 35 U.S.C. 103(a) as allegedly unpatentable over Dal Moro et al., (GB 2067406) (also published as US 4,323,556) in view of Kumar and Rong et al. Applicant traverses this rejection.

In rejecting the claims, the Examiner asserts at page 8 that "DalMoro teaches formulations comprising inert carriers and 0.5-10% insect pheromones (abstract), that said carriers may be attapulgitites and that said formulations are sustained release (page 2, lines 14-18), as pertaining to claim 5." Applicant respectfully disagrees.

Dal Moro et al. do not teach a formulation comprising inert carriers and insect pheromones. In the cited abstract, Dal Moro et al. disclose ". . . a sex pheromone of insect, supported by an inert carrier coated with a film-generating resin, . . . ." If the skilled person considering Dal Moro et al. were to use the teachings of Kumar to replace the attapulgitites of Dal Moro et al. with the sepiolites, palygorskites, or montmorillonites of Kumar, the resulting composition would be a non-calcined sepiolite, palygorskite, or montmorillonite-or a mixture of 65% non-calcined and 35% calcined minerals--containing an insect pheromone. Such a composition is similar to the inferior compositions shown in Tables 2 and 4 of the instant specification wherein the clays were not fired. As discussed above, Kumar fails to recognize that a substrate consisting essentially of calcined crystalline minerals confers an advantageous result, as disclosed in the present specification. As such, Kumar does not disclose a substrate consisting essentially of calcined crystalline minerals.

As stated previously, the calcining steps disclosed in Rong et al. impart thermal resistance to clay nanocomposites and are not applicable to a substrate of calcined crystalline minerals for containing a pheromone. Accordingly, the Examiner's assertion that Rong et al. can be combined with Dal Moro et al. and Kumar is incorrect. Even if one assumes that the skilled person could have adopted a calcining step from a relevant reference, the substitution of sepiolite, palygorskite, or montmorillonite from Kumar for the attapulgitites of Dal Moro et al., results in a sepiolite, palygorskite, or montmorillonite coated with a film-generating resin. Applying a firing step to any of these resin-coated species would destroy the resin film.

Applicant respectfully submits that the Examiner's hindsight has skewed his

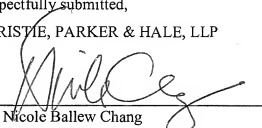
**Appln No. 10/573,230**  
**Amdt date April 28, 2010**  
**Reply to Office action of January 28, 2010**

interpretation of Dal Moro et al., as the proposal to combine Dal Moro et al., with Kumar and Rong et al., (or a proper calcining reference) would render the carriers of Dal Moro et al., unsatisfactory for the intended purpose. Such assessment of patentability under 35 U.S.C. 103 is not in accordance with MPEP 2143.01 V, which states: "*If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification.*" *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984). Accordingly, independent claim 5, and all claims depending therefrom, including claims 6-22, are patentable over Dal Moro et al. in view of Kumar and Rong et al. In addition, the dependent claims include other limitations, which together with their base claim and any intervening claims, further patentably distinguish them over the cited art. As such, withdrawal of this rejection is respectfully requested.

In light of the above amendments and remarks, Applicant submits that all of the pending claims (5-22) are in condition for allowance. Applicant respectfully requests reconsideration and a timely indication of allowance. If there are any remaining issues that can be addressed by telephone, Applicant invites the Examiner to contact Applicant's counsel at the number indicated below.

Respectfully submitted,  
CHRISTIE, PARKER & HALE, LLP

By



Nicole Ballew Chang  
Reg. No. 61,611  
626/795-9900

NBC/nbc

ARS PAS897978.1-\*04/28/10 9:51 AM